UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 W. JACKSON BLVD
CHICAGO, IL 60604

29 OCT 2013

MEMORANDUM

SUBJECT: ACTION MEMORANDUM - Request for Approval and Funding for a Time-Critical Removal Action at the Valley Pike VOC Site, Riverside, Montgomery County, Ohio (Site ID # C5U2)

FROM: Steve Renninger, OSC
Emergency Response Branch 1

THRU: Jason H. El-Zein, Chief
Emergency Response Branch 1

TO: Richard C. Karl, Director
Superfund Division

I. PURPOSE

The purpose of this memorandum is to request and document your approval for the United States Environmental Protection Agency (EPA) to expend up to $1,177,602 to conduct a time-critical removal action at the Valley Pike VOC Site (the Site), located in Riverside, Montgomery County, Ohio.

The response actions proposed herein are necessary in order to mitigate the immediate threat to human health and the environment posed by elevated levels of chlorinated volatile organic compounds (VOCs), including tetrachloroethylene (PCE) and trichloroethylene (TCE), which are hazardous substances as defined by CERCLA Section 101(14), in the groundwater, soil vapor, sub-slab gas and indoor air at the Site. Groundwater concentrations of PCE and TCE exceed federal Maximum Contaminant Levels (MCLs) and Site-specific screening levels for soil gas contaminants developed by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Ohio Department of Health (ODH). Groundwater, soil gas, sub-slab vapor, and indoor air sample results indicate a direct connection (i.e., a completed exposure pathway) between PCE- and TCE-contaminated groundwater and PCE and TCE sub-slab and indoor air samples at residential properties at levels that ATSDR and ODH consider harmful to human health. This is known as a vapor intrusion completed pathway.

The proposed removal action will address immediate threats to public health, welfare, and the environment posed by the Site through the following actions:

- Conduct extent of contamination sampling utilizing sub-slab and indoor air sampling techniques.

- If the ODH sub-slab or indoor air screening level for a contaminant of concern (e.g., PCE or TCE) is exceeded for a residential structure, design and install a vapor abatement mitigation system in the structure(s) impacted by subsurface gas migration. The abatement system will include installation of a sub-slab depressurization system (SSDS) or crawl space depressurization system, sealing cracks in walls and floors of the basement, and sealing drains that could be a pathway. The vapor abatement mitigation system will be designed to control levels of VOCs to below ODH sub-slab and indoor air screening levels.

There are no nationally significant or precedent-setting issues associated with the Site. This response action will be conducted in accordance with Section 104(a)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9604(a)(1), and 40 C.F.R. § 300.415 (*Removal action*) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) to abate or eliminate the immediate threats posed to public health and/or the environment.

The uncontrolled conditions of the hazardous substances present at the Site require that this action be classified as a time-critical removal action. The project will require approximately 75 working days to complete.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID: OHN000510923
Category: Time-Critical Removal Action

At this time, the approximate boundaries of the Site are the Mullins Rubber Products, Inc. (MRP) facility on the east, Pleasant Valley Avenue on the west, Bushnell and Hypathia Avenues on the north and Valley Pike Road on the south. The Site contains a residential neighborhood which has been documented as having vapor intrusion from a PCE- and TCE-contaminated, shallow groundwater plume. The neighborhood is located southwest of the MRP facility which, as described below, has historically handled VOCs.

A. Site Conditions and Background

1. Removal Site Evaluation

a) Site Background – Mullins Rubber Products, Inc.

MRP, an active business, began operations in 1942 as the Mullins Tire and Rubber Company. The primary operation at that time was retreading used tires. In 1955, the business expanded from tires into molding different types of rubber products. Beginning in the mid-1960s, the company focused on molding heavy-duty truck trailer suspension bushings, a product line that continues today.

A main building, several storage sheds, and four production wells are located on the MRP property. The active deep production well formerly produced about 300 gallons per minute for 8 hours a day. Currently, the production well is only used infrequently to "top off" the closed loop system. There are two deep production wells on stand-by. A fourth shallow (50 feet deep) well is damaged and is no longer used but remains in place. All production wells are located on the east side of the MRP facility.

Cooling water from degreasing tanks associated with the manufacturing process previously discharged into a series of five dry wells located on the northern portion of the MRP facility. A dry well is an underground structure that disposes of water by discharging it into the ground where it merges with local groundwater. MRP recently installed a closed loop chiller system which eliminates the need to discharge cooling water to the dry wells. Until the chiller system was operational, the dry wells were used to return the cooling water to the shallow sand and gravel formation. The five dry wells were interconnected and terminated at the man-made depression located at the northeast corner of the MRP property. The dry wells were considered Class V injection wells under the Ohio Underground Injection Control (UIC) Program. Permits were not issued, but the wells were registered with Ohio EPA. The dry wells also received storm water runoff.

b) Site Background – Ohio EPA Site Inspection

In November 2010, Ohio EPA conducted a Site Inspection at MRP, and determined that the flow of groundwater is to the south and southwest of the MRP facility. Six groundwater grab samples were collected using the geoprobe direct-push technology. The active deep production well was sampled, along with dry well number DW-2, which received cooling water from the degreasing tanks.

Sample results indicated significant levels of PCE and lower levels of TCE in three of the samples. PCE was detected at 156 micrograms per liter (µg/L) and TCE was detected at 6.18 µg/L in the active production well sample. At that time, water from this production well entered the cooling water system and was discharged to either dry well DW-2 or DW-3. The sample collected from DW-2 also contained PCE and TCE but at lower concentrations than in the production well sample. PCE was detected at 77 µg/L and TCE was detected at 2.2 µg/L in the sample collected from DW-2. PCE and TCE concentrations were also detected in a shallow geoprobe groundwater grab sample collected in the southwest corner of the MRP facility. PCE was detected at 58 µg/L and TCE was detected at 11 µg/L at this down-gradient location. In summary, Ohio EPA's sampling activities document PCE and TCE contamination in the active production well and dry wells at the MRP facility.

c) Site Background – Ohio EPA Expanded Site Inspection

In December 2011, Ohio EPA conducted an Expanded Site Inspection (ESI) at the MRP facility. Three geoprobe pre-packed monitoring wells were installed. ESI samples documented PCE and TCE in both shallow and deep aquifers but contamination was highest in MW-3 located at the southwest corner of the MRP facility. PCE was detected at a concentration of 300 µg/L in MW-3. Higher concentrations of PCE in the shallow aquifer point to a shallow rather than a deep source of PCE.

d) Site Background – Ohio EPA Supplemental Expanded Site Inspection

In March 2013, Ohio EPA conducted a Supplemental Expanded Site Inspection (SESI) at the Site. SESI sampling results showed significant detections of TCE and PCE in the shallow sand and gravel aquifer. The highest concentration of PCE in shallow groundwater was detected at GW-14, approximately 50 feet down gradient of the MRP facility. The concentration of PCE was 14,000 µg/L in the laboratory analyzed sample. (Ohio EPA, June 2013) In addition, Ohio EPA observed PCE concentrations ranging from 5 to 14,000 µg/L along the southwestern perimeter of the MRP facility and non-detect to 31 µg/L along the northeastern perimeter of the MRP facility. (see **Figure A-2**) Based on these groundwater sample results, the Ohio EPA SESI report concludes that the PCE source is east of sample location GW-14.

Additionally, PCE was detected at a concentration of 1,500 µg/L at MW-4 in a residential area located 900 feet southwest of the MRP facility. The detection of VOCs in the groundwater underlying this residential area, which is down-gradient of the MRP facility, prompted Ohio EPA to request EPA removal assistance in May 2013 to investigate potential vapor intrusion at the Site.

e) Site Background – Ohio Department of Health

On June 14, 2013, the Health Assessment Section of the Ohio Department of Health (ODH) provided health-based guidance to evaluate the results of vapor intrusion sub-slab and indoor air sampling for contaminants of concern at the Site. ODH identified residential and non-residential sub-slab and indoor air screening and action levels. Table 1 summarizes the PCE and TCE screening and action levels for the Site.

TABLE 1

2013 OHIO DEPARTMENT OF HEALTH SCREENING AND ACTION LEVELS

Chemical of Concern	Residential Screening Level (10^{-5})	Non-Residential Screening Level (10^{-5})	Residential Action Level (10^{-4})	Non-Residential Action Level (10^{-4})
Indoor Air				
TCE	0.4	2	4	20
PCE	6	25	60	250
Sub-Slab				
TCE	4	20	40	200
PCE	60	250	600	2,500

Notes:
The screening levels are in parts per billion by volume (ppbv) and based on 10^{-5} cancer risk (Hazard Index of 1.0).

The action levels are in ppbv and based on 10^{-4} cancer risk (Hazard Index of 10) and generally used for time critical removal actions

On September 4, 2013, ODH, under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), submitted a Letter Health Consultation to EPA. The Health Consultation assesses the data that EPA collected and discusses the public health implications of exposure to VOCs from vapor intrusion from the Site. The Health Consultation provides the following conclusions and recommendations:

Health Consultation Conclusions

1. A completed exposure pathway exists for vapor intrusion, as PCE has been detected as high as 20,000 ppb in the groundwater, 30,000 ppb in the soil gas, 8,200 ppb in the sub-slab soil gas, and 31 ppb in the indoor air at one residence. TCE has been detected as high as 47 ppb in the groundwater, 5,600 ppb in the soil gas, 160 ppb in the sub-slab soil gas, and 0.87 ppb in the indoor air at the same residential property.

2. VOCs in the sub-slab soil gas samples at the four residences sampled (two located on Rondowa Avenue, one on Hypathia Avenue, and one on Bushnell Avenue) located in the neighborhood southwest of the MRP facility were detected at levels that could affect indoor air quality. PCE levels in the sub-slab samples exceeded both screening and action levels.

3. Concentrations of PCE and TCE in the indoor air of one residence tested in July 2013 exceeded screening levels. The estimated total non-cancer hazard quotient is about 7. There is a potential but low cancer risk of 8×10^{-5} (8 in 100,000) for residents exposed over a lifetime.

4. More data is needed to conclude whether the vapor intrusion pathway could affect indoor air quality at other residential properties and harm people's health. At this time, only a few indoor air samples have been collected by EPA. Additionally, previous experience with vapor intrusion sites in the same general part of north Dayton have indicated potential for significant seasonal variation in soil gas levels under impacted homes.

Health Consultation Recommendations

1. Testing the indoor air of the other homes with high sub-slab results should be a priority. Other residences and businesses at risk of exposure via vapor intrusion pathway should have their sub-slab and indoor air sampled for PCE, TCE, and degradation products cis-1,2-DCE and vinyl chloride. Concurrent outdoor (ambient) air samples should also be collected. Sample collection during multiple seasons, including at least one sample in the winter, is recommended to characterize seasonal variability.
2. The home on Bushnell Avenue should be considered for mitigation to reduce or eliminate ongoing exposures to PCE and TCE in the indoor air. Occupied residences with sub-slab soil gas concentrations exceeding action levels should also be considered for mitigation.
3. The full extent of the VOC contamination, both in groundwater and soil gas, associated with the Valley Pike VOC site should be determined.

f) Site Background – Ohio EPA Request for Removal Assistance

In a letter dated May 9, 2013, the Ohio EPA expressed concerns about the risk to human health from indoor air exposure to VOCs from a shallow groundwater plume. Ohio EPA viewed the Site as a potential threat to the residences and businesses located southwest of the MRP facility. Ohio EPA requested assistance from the EPA Removal Branch in evaluating options for addressing current and potential vapor intrusion risks at the Site. Note that the Ohio EPA referenced this Site as the Mullins Rubber Site during the SESI.

g) Site Background – 2013 EPA Removal Site Investigation

In July and August 2013, EPA conducted a Removal Site Investigation at the Site including groundwater, soil gas and residential sub-slab and indoor air sampling. Ohio EPA's Site Investigation Field Unit (SIFU) provided a geoprobe unit and installed 16 soil gas probes at 9 locations southwest of the MRP facility. **Figure A-3** shows the locations of the soil gas probes. If water was encountered, a grab groundwater sample was collected at each soil gas probe location.

Groundwater Samples

EPA analyzed four groundwater samples during the investigation. Groundwater samples SG-2-GW, GW-7 and GW-8 were collected from the neighborhood southwest of the MRP facility. Groundwater sample GW-9 was collected adjacent (southwest side) to the MRP facility (**see Figure A-3**).

The groundwater sample collected from SG-9 (Sample GW-9) showed the highest PCE concentration at 20,000 µg/L. The groundwater sample collected from SG-8 (Sample GW-8) showed the highest TCE concentration at 47 µg/L. The highest PCE groundwater concentrations observed under the neighborhood southwest of the MRP facility ranged from 240 to 800 µg/L. Table 2 summarizes the PCE and TCE groundwater sampling results.

TABLE 2

GROUNDWATER SAMPLING SUMMARY

Compound	Sample ID	SG-2-GW Residential Area on Hypathia Avenue	GW-7 Residential Area on Pleasant Valley Avenue	GW-8 Residential Area on Pleasant Valley Avenue	GW-9 50 feet from MRP facility
	Sampling Depth	**25.68-ft**	**23.10-ft**	**23.62-ft**	**22.35-ft**
PCE		800	240	350	20,000
TCE		24	45	47	ND (100)

Notes:
Groundwater sampling results reported in µg/L
ft – Feet
ID - Identification
ND – Not detected (method detection limit)
PCE – Tetrachloroethylene
TCE – Trichloroethylene

Soil Gas Samples

Ohio EPA SIFU and EPA personnel installed 16 soil gas probes adjacent to MRP and in the neighborhood southwest of the MRP facility. A tedlar bag sample was collected from each soil gas probe depth and analyzed in Ohio EPA's mobile laboratory using a field gas chromatograph (Voyager Unit). The soil gas tedlar bag sample from each soil gas location which showed the highest PCE concentration was sampled by EPA for commercial laboratory analysis. A total of 9 soil gas samples were collected by EPA and sent for EPA Method TO-15 analysis. Sampling results showed PCE concentrations as high as 30,000 parts per billion by volume (ppbv) and TCE concentrations as high as 5,600 ppbv. Table 3 summarizes the laboratory soil gas sampling results.

TABLE 3

SOIL GAS SAMPLING SUMMARY

Compound	10 times the Sub-Slab Action Level	Soil Gas Probe Location	SG-1	SG-2	SG-3	SG-4	SG-5	SG-7	SG-8	SG-9	SG-10
		Sampling Depth (feet bgs)	22.5'	22.5'	22.5'	22.5'	11'	20'	20'	19'	20'
PCE	6,000		**30,000**	900	**8,200**	1,300	40	3,800	2,000	1,500	**12,000**
TCE	400		**650**	73	**850**	**960**	1.7	**440**	330	130	**5,000**

Notes:
Soil gas sampling results reported in parts per billion by volume
Results bolded and shaded in red are greater than 10 times the 10^{-4} sub-slab action level for residential properties
bgs – below ground surface
PCE – Tetrachloroethylene
TCE – Trichloroethylene

Sub-Slab Samples - Residential

EPA collected sub-slab samples at five residential properties located in the neighborhood southwest of the MRP facility. A summary of the sub-slab air sampling results which exceeded ODH screening levels are as follows:

- EPA observed PCE in sub-slab samples collected from four residential properties at concentrations ranging from 930 to 8,200 ppbv, which exceed the ODH residential sub-slab PCE screening level of 60 ppbv and the ODH residential sub-slab action level of 600 ppbv.

- EPA observed TCE in sub-slab samples collected from three residential properties at concentrations ranging from 60 to 160 ppbv, which exceed the ODH residential sub-slab TCE screening level of 4 ppbv and the ODH residential sub-slab action level of 40 ppbv.

Table 4 summarizes the residential sub-slab sampling results.

TABLE 4

RESIDENTIAL SUB-SLAB SAMPLING SUMMARY

Compound	Sub-Slab Screening Level	Sub-Slab Action Level	Sample ID	2939Valley-SS-070913	2637Rondowa-SS-070913	120Hypathia-SS-070913	2645Rondowa-SS-071013	2634 Bushnell-SS-071013
			Address	2939 Valley Pike	2637 Rondowa Ave	120 Hypathia Ave	2645 Rondowa Ave	2634 Bushnell Ave
			Date Sampled	7-9-13	7-9-13	7-9-13	7-10-13	7-10-13
PCE	60	600		9.3	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**
TCE	4	40		0.79	**[illegible]**	1.8	**[illegible]**	**[illegible]**

Notes:
Results reported in parts per billion by volume.
Results bolded and highlighted red indicate results exceeding both the sub-slab screening (10^{-5} risk level) and action levels (10^{-4} risk level) for residential properties

Indoor Air Samples - Residential

EPA collected indoor air samples at six residential properties located in the neighborhood southwest of the MRP facility. A summary of the indoor air sampling results which exceeded ODH screening levels are as follows:

- EPA observed PCE concentrations in indoor air samples collected from 2634 Bushnell Avenue at 32 ppbv and from 120 Hypathia Avenue at 6.9 ppbv, both which exceed the PCE screening level of 6 ppbv.

- EPA observed TCE concentrations in indoor air samples collected from 2634 Bushnell Avenue at 0.87 and 0.92 ppbv; from 120 Hypathia Avenue at 0.44 ppbv; and from 2637 Rondowa Avenue at 0.58 ppbv. All of these sampling results exceed the TCE screening level of 0.4 ppbv.

Table 5 summarizes the residential indoor air sampling results.

TABLE 5

RESIDENTIAL INDOOR AIR SAMPLING SUMMARY

Compound	Indoor Air Screening Level	Indoor Air Action Level	Sample ID	2645Rondowa-IA-071013	2634Bushnell-IA-072413	2634Bushnell-IA-081513	120Hypathia-IA-081513
			Address	2645 Rondowa Ave	2634 Bushnell Ave	2634 Bushnell Ave	120 Hypathia Ave
			Date Sampled	7-10-13	7-24-13	8-15-13	8-15-13
PCE	6	60		2.9	**31**	**32**	**6.9**
TCE	0.4	4		ND (0.34)	**0.87**	**0.92**	**0.44**

TABLE 5 (continued)

RESIDENTIAL INDOOR AIR SAMPLING SUMMARY

Compound	Indoor Air Screening Level	Indoor Air Action Level	Sample ID	2637Rondowa-IA-081513	2624Bushnell-IA-082213	2629Bushnell-IA-082213
			Address	2637 Rondowa Ave	2624 Bushnell Ave	2629 Bushnell Ave
			Date Sampled	8-15-13	8-22-13	8-22-13
PCE	6	60		4.2	0.49	1.0
TCE	0.4	4		**0.58**	ND (0.34)	ND (0.39)

Notes:
ND = Not detected (reporting limit)
Results reported in parts per billion by volume.
Results bolded and highlighted yellow indicate results exceeding the indoor air screening level

2. Physical Location

As mentioned above, the approximate boundaries of the Site are the MRP facility on the east, Pleasant Valley Avenue on the west, Bushnell and Hypathia Avenues on the north and Valley Pike Road on the south.

MRP is an active manufacturing facility located at 2949 Valley Pike in Riverside, Montgomery County, Ohio **(Figure A-1)**. The MRP facility occupies a single parcel (Parcel I39002030048) and comprises approximately 3.675 acres. Most of the parcel is covered with buildings and asphalt or concrete. There is a small grassy area in the front parking area and a vegetative swale across the northern fence line. A single family residential neighborhood begins along Hypathia Avenue, approximately 500 feet west of MRP. The Site includes the area over the PCE- and TCE-contaminated plume flowing southwest of the MRP facility, and is located approximately 1,300 feet north of the Dayton Mad River Well Field wellhead protection area (WHPA). The closest production well is PW-06, approximately 2,650 feet south of the facility in the Mad River Well Field.

An Environmental Justice (EJ) analysis for the Site was conducted. Screening of the surrounding area used Region 5's EJ Screen Tool (which applies the interim version of the national EJ Strategic Enforcement Assessment Tool (EJSEAT). Region 5 has reviewed environmental and demographic data for the area surrounding the Site and determined there is a low potential for EJ concerns at this location.

3. Site Characteristics

In July and August 2013, EPA conducted a Removal Site Investigation at the Site, including groundwater, soil gas, sub-slab (SS) and indoor air (IA) sampling.

EPA observed the following:

- Groundwater – PCE concentrations as high as 20,000 µg/L
- Soil Gas – PCE concentrations as high as 30,000 ppbv
- Sub-Slab – PCE concentrations as high as 8,200 ppbv (136 times the SS 10^{-5} screening level)
- Indoor air – PCE concentrations as high as 32 ppbv (5 times the IA 10^{-5} screening level)

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

A release of hazardous substances, pollutants, or contaminants is present due to documented vapor intrusion at the Site. A completed exposure pathway exists for vapor intrusion, as PCE has been documented in the groundwater (PCE as high as 20,000 µg/L), in the soil gas (PCE as high as 30,000 ppbv), in the sub-slab (PCE as high as 8,200 ppbv) and in the indoor air (PCE as high as 32 ppbv) at the Site.

In addition, a second completed exposure pathway exists for vapor intrusion, as TCE has been documented in the groundwater (TCE as high as 47 µg/L), in the soil gas (TCE as high as 5,600 ppbv), in the sub-slab (TCE as high as 160 ppbv) and in the indoor air (TCE as high as 0.92 ppbv) at the Site.

ODH has concluded that there is a vapor intrusion completed exposure pathway at the Site.

5. NPL status

The site is not listed on the CERCLA National Priorities List.

6. Maps, pictures and other graphic representations

Figure A-1 Site Location Map, Figure A-2 Ohio EPA Groundwater PCE Sampling Results, Figure A-3 Sampling Location Map and Figure A-4 Photos are included as attachments.

B. Other Actions to Date

1. Previous actions

Previous actions by EPA and Ohio EPA have been documented in the Background Section (Section II.A.2).

2. Current actions

Based on EPA's analysis of sampling results, vapor intrusion is occurring at the Site. One residential property has shown a sub-slab PCE concentration (8,200 ppbv) 13.5 times greater than the ODH action level of 600 ppbv, and an indoor air PCE concentration (32 ppbv) 5 times greater than the ODH indoor air screening level of 6 ppbv. In addition, three other residential properties have sub-slab PCE concentrations ranging between 930 and 1,300 ppbv, which exceed the ODH PCE action level of 600 ppbv.

In addition, three residential properties have shown sub-slab TCE concentrations between 60 and 160 ppbv, all which exceed the ODH sub-slab TCE action level; and indoor air TCE concentrations between 0.44 and 0.92 ppbv, all which exceed the ODH indoor air TCE screening level.

C. State and Local Authorities' Roles

In a letter dated May 9, 2013, Ohio EPA requested assistance from the EPA Removal Branch in evaluating options for addressing current and potential vapor intrusion risks at the Site.

As described above, on September 4, 2013, ODH, under a Cooperative Agreement with ATSDR, submitted a Health Consultation to EPA. Among other things, the Health Consultation concludes that a completed exposure pathway exists for vapor intrusion at the Site.

The Health Consultation area of concern includes the MRP facility on the east, Pleasant Valley Avenue on the west (approximately 1,500 feet southwest of the MRP facility), Bushnell and Hypathia Avenues on the north and Valley Pike Road on the south. This area covers approximately 4 residential blocks and 75 residences.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the Site present a threat to the public health or welfare, and the environment, and meet the criteria for a time-critical removal action as provided for in the NCP at 40 C.F.R. § 300.415(b)(2). These criteria include, but are not limited to, the following:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

Vapor intrusion occurs when vapors produced by a chemical spill or groundwater contamination plume migrate through soil into the foundations of structures and into the indoor air. When chemicals are released on the ground, they will seep into the soil and make their way into the groundwater. VOCs, including PCE and TCE, produce vapors that travel through soil. These vapors can enter a home or building through cracks in the foundation or into a basement with a dirt floor or concrete slab.

To date, EPA has conducted vapor intrusion sampling and has documented the following VOC exceedances:

- EPA observed PCE in sub-slab samples collected from four residential properties at concentrations ranging from 930 to 8,200 ppbv, which exceed the ODH residential sub-slab PCE 10^{-5} screening level of 60 ppbv and ODH residential sub-slab 10^{-4} action level of 600 ppbv.

- EPA observed TCE in sub-slab samples collected from three residential properties at concentrations ranging from 60 to 160 ppbv, which exceed the ODH residential sub-slab TCE 10^{-5} screening level of 4 ppbv and ODH residential sub-slab 10^{-4} action level of 40 ppbv.

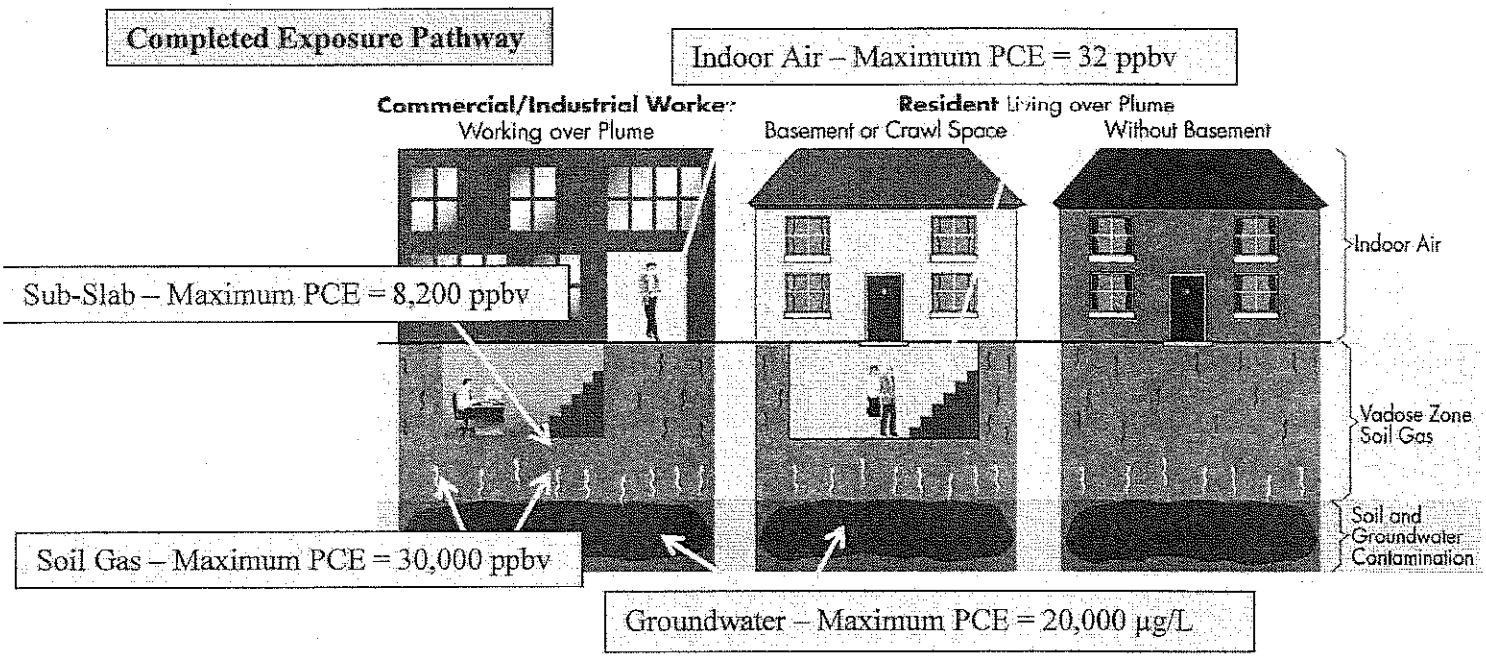
- EPA observed PCE in indoor air samples collected from two residential properties at concentrations ranging from 6.9 to 32 ppbv, which exceed the ODH residential indoor air 10^{-5} screening level of 6 ppbv.

- EPA observed TCE in indoor air samples collected from three residential properties at concentrations ranging from 0.44 to 0.92 ppbv, which exceed the ODH residential indoor air 10^{-5} screening level of 0.4 ppbv.

A completed exposure pathway exists for vapor intrusion, as PCE has been documented in the groundwater (PCE as high as 20,000 µg/L), in the soil gas (PCE as high as 30,000 ppbv), in the sub-slab (PCE as high as 8,200 ppbv) and in the indoor air (PCE as high as 32 ppbv) at the Site.

In addition, a second exposure pathway exists for vapor intrusion, as TCE has been documented in the groundwater (TCE as high as 47 µg/L), in the soil gas (TCE as high as 5,600 ppbv), in the sub-slab (TCE as high as 160 ppbv) and in the indoor air (TCE as high as 0.92 ppbv) at the Site.

The Valley Pike VOC Site Vapor Intrusion Conceptual Site Model (CSM) illustrating a completed exposure pathway for PCE, is presented below.



There is actual vapor intrusion exposure occurring and there is a potential for additional vapor intrusion to occur at this Site.

PCE is a hazardous substance within the meaning of Section 101(14) of CERCLA because it is listed at 40 C.F.R. § 302.4. Historical groundwater sampling, and EPA sub-slab and indoor air sampling results indicate that PCE vapors are migrating into residential structures at levels that ODH considers harmful to human health.

PCE is a man-made liquid chemical that is widely used for dry cleaning clothes and to remove grease from metal parts. It easily evaporates into the air and is a nonflammable, colorless liquid with a sharp, sweet odor. Exposure to TCE at very high concentrations (particularly in closed, poorly ventilated areas) may cause headaches, dizziness, sleepiness, confusion, nausea, poor coordination, and difficulty speaking. According to the ODH, the evidence that PCE is a human carcinogen has been under review by health organizations since 2001. The U.S. Department of Health and Human Services considers PCE to be "reasonably anticipated to be a human carcinogen" based on limited evidence of carcinogenicity from studies of humans and sufficient evidence of carcinogenicity from studies of laboratory animals.

TCE is a hazardous substance within the meaning of Section 101(14) of CERCLA because it is listed at 40 C.F.R. § 302.4. Historical groundwater sampling, and EPA sub-slab and indoor air sampling results indicate that TCE vapors are migrating into residential structures that ODH considers harmful to human health.

TCE is a man-made chemical that is widely used as a cleaner to remove grease from metal parts. TCE is a nonflammable, colorless liquid with a sweet odor. Exposure to TCE at very high concentrations (particularly in closed, poorly ventilated areas) may cause headaches, lung

irritation, dizziness, poor coordination, and difficulty speaking. According to the ODH, the evidence that TCE is a human carcinogen has been under review by health organizations since 2001. The U.S. Department of Health and Human Services considers TCE to be "reasonably anticipated to be a human carcinogen" based on limited evidence of carcinogenicity from studies of humans and sufficient evidence of carcinogenicity from studies of laboratory animals. A report recently released by the National Academies of Science National Research Council (2006) has stated that "evidence on cancer and other health risks from TCE exposure has strengthened since 2001," pointing to studies of human populations that support "the conclusion that TCE is a potential cause of kidney cancer." Other ecological studies of communities exposed to TCE in drinking water supplies in Massachusetts, New Jersey, and North Carolina have suggested an association between these exposures and elevated levels of leukemia in the exposed population.

The availability of other appropriate Federal or state response mechanisms to respond to the release;

Ohio EPA does not have the resources to respond to this Site. In a letter dated May 9, 2013, Ohio EPA requested assistance from the EPA Removal Branch in evaluating options for addressing current and potential vapor intrusion risks at the Site.

IV. ENDANGERMENT DETERMINATION

Given the conditions at the Site, the nature of the known and suspected hazardous substances at the Site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The response actions described in this Action Memorandum directly address actual or potential releases of hazardous substances at the Site, which may pose an imminent and substantial endangerment to public health, or welfare, or the environment. The proposed action will include the following removal activities:

1) Develop and implement a Site Health and Safety Plan;

2) Conduct vapor intrusion sampling (for VOCs) and extent of contamination sampling utilizing groundwater, soil gas, sub-slab, and indoor air sampling techniques. The area of investigation includes the MRP facility on the east, Pleasant Valley Avenue on the west (approximately 1,500 feet southwest of the MRP facility), Bushnell and Hypathia Avenues on the north and Valley Pike Road on the south. This area covers approximately 4 residential blocks and 75 residences.

3) If the ODH Sub-Slab or Indoor Air Screening Level for a contaminant of concern (e.g., PCE or TCE) is exceeded for a residential structure, design and install a vapor abatement mitigation system in the structure impacted by subsurface gas migration (up to 75 residences). The abatement system will include installation of a SSDS or crawl space depressurization system, sealing cracks in walls and floors of the basement, and sealing drains that could be a pathway. The vapor abatement mitigation system will be designed to control levels of VOCs to below ODH sub-slab and indoor air screening levels; and

4) Develop and implement a performance sample plan to confirm that ODH screening levels are achieved for contaminants of concern (PCE, TCE, etc) following installation of a SSDS.

The removal action will be conducted in a manner not inconsistent with the NCP. The On-Scene Coordinator (OSC) has initiated planning for provision of post-removal site control consistent with the provisions of Section 300.415(l) of the NCP. Operation and maintenance (O&M) of the vapor abatement systems will be the responsibility of the property owner following installation and performance monitoring by EPA. The EPA will require the property owner to sign an O&M agreement prior to installation. The O&M agreement states that the property owner will provide electricity to power the vapor abatement system inline fan. The vapor abatement system inline fan is warranted by the manufacturer for 5 years following installation.

Off-Site Rule

All hazardous substances, pollutants, or contaminants removed off-Site pursuant to this removal action for treatment, storage, and disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, with the EPA Off-Site Rule, 40 C.F.R. § 300.440.

2. Contribution to remedial performance

The proposed action will not impede future actions based on available information. The Site is currently being evaluated for future remedial activities.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Not Applicable

Applicable or relevant and appropriate requirements (ARARs)

All applicable and relevant and appropriate requirements (ARARs) of federal and State law will be complied with to the extent practicable. The OSC submitted a letter dated August 19, 2013, to Scott Glum, Ohio EPA Southwest District Office, requesting state ARARs for the Site. Any state ARARs identified in a timely manner will be complied with to the extent practicable.

Project Schedule

The removal activities are expected to take 75 on-site working days to complete.

Estimated Costs

The detailed cleanup contractor cost is presented in Attachment I and the Independent Government Cost Estimate is presented in Attachment III. Estimated project costs are summarized below:

Regional Removal Allowance Costs	
Total Cleanup Contractor Costs (Includes a 20% contingency)	$914,002
Other Extramural Costs Not Funded from the Regional Allowance	
Total START, including multiplier costs	$110,000
Subtotal, Extramural Costs	$1,024,002
Extramural Costs Contingency (15% of Subtotal, Extramural Costs)	$153,600
TOTAL REMOVAL ACTION PROJECT CEILING	$1,177,602

The response actions described in this Action Memorandum directly address actual or threatened releases of hazardous substances, pollutants, or contaminants at the Site which may pose an imminent and substantial endangerment to public health and safety and the environment. These response actions do not impose a burden on affected properties disproportionate to the extent to which the properties contribute to the conditions being addressed.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed or no action at the Site increases the potential that additional hazardous substances will be released, thereby further endangering, public health, welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum.

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be $2,152,505.[1]

($1,177,602 + $144,900) + (61.61% X $1,322,502) = $2,137,295

IX. RECOMMENDATION

This decision document represents the selected removal action for the Valley Pike VOC Site, located in Riverside, Montgomery County, Ohio, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for the Site (Attachment II). Conditions at the Site meet the criteria for a removal action set forth at 40 C.F.R. § 300.415(b), and I recommend your approval of the proposed removal action.

The total removal action project ceiling, if approved, will be $1,177,602. Of this, as much as $1,067,602 comes from the Regional removal allowance.

APPROVE _____ DATE: 10-29-13
Director, Superfund Division

DISAPPROVE _____ DATE: _____
Director, Superfund Division

Enforcement Addendum

Figures:

A-1 Site Location Map
A-2 Ohio EPA Groundwater PCE Sampling Results - 2013

[1] Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

A-3 Sampling Location Map
A-4 Photographic Documentation

Attachments:

I. Detailed Cleanup Contractor Cost Estimate
II. Administrative Record Index
III. Independent Government Cost Estimate

cc: S. Fielding, EPA 5202G
V. Darby, U.S. Department of Interior, **w/o Enf. Attachment**
(email: Valencia.darby@ios.doi.gov)
Scott Nally, Director, Ohio EPA, **w/o Enf. Addendum**
(email: Scott.Nally@epa.state.oh.us)
Mike DeWine, Ohio Attorney General, **w/o Enf. Addendum**
(email: Mike.DeWine@ohioattorneygeneral.gov)

bcc: J. Glover, MRS-10J, **w/o Enf. Attachment** (John Glover/R5/USEPA/US)
J. El-Zein, SE-5J, (Jason El-Zein/R5/USEPA/US)
M. Durno, ME-W, (Mark Durno/R5/USEPA/US)
G. Co, SE-5J (Grace Co/R5/USEPA/US)
S. Renninger (Steven Renninger/R5/USEPA/US)
M. Johnson, ATSD- 4J, **w/o Enf Addendum** (Mark Johnson/R5/USEPA/US)
R. Murawski, C-14J (Richard Murawski/R5/USEPA/US)
J. Kelley, P-19J, **w/o Enf. Addendum** (Jeff Kelley/R5/USEPA/US)
ERB Delivery Order File, SE-5J, (C. Norman/G. Stanuch), (Carl Norman/R5/USEPA/US), (Gail Stanuch/R5/USEPA/US)
Record Center, (SMR-7J)

ENFORCEMENT ADDENDUM
VALLEY PIKE VOC SITE
RIVERSIDE, MONTOGMERY COUNTY, OHIO
OCTOBER 2013

ENFORCEMENT CONFIDENTIAL
NOT SUBJECT TO DISCOVERY

Redacted, Exemption 5-Attorney Work-Product Privilege and Exemption 7 (a) Interference with Enforcement Proceedings.

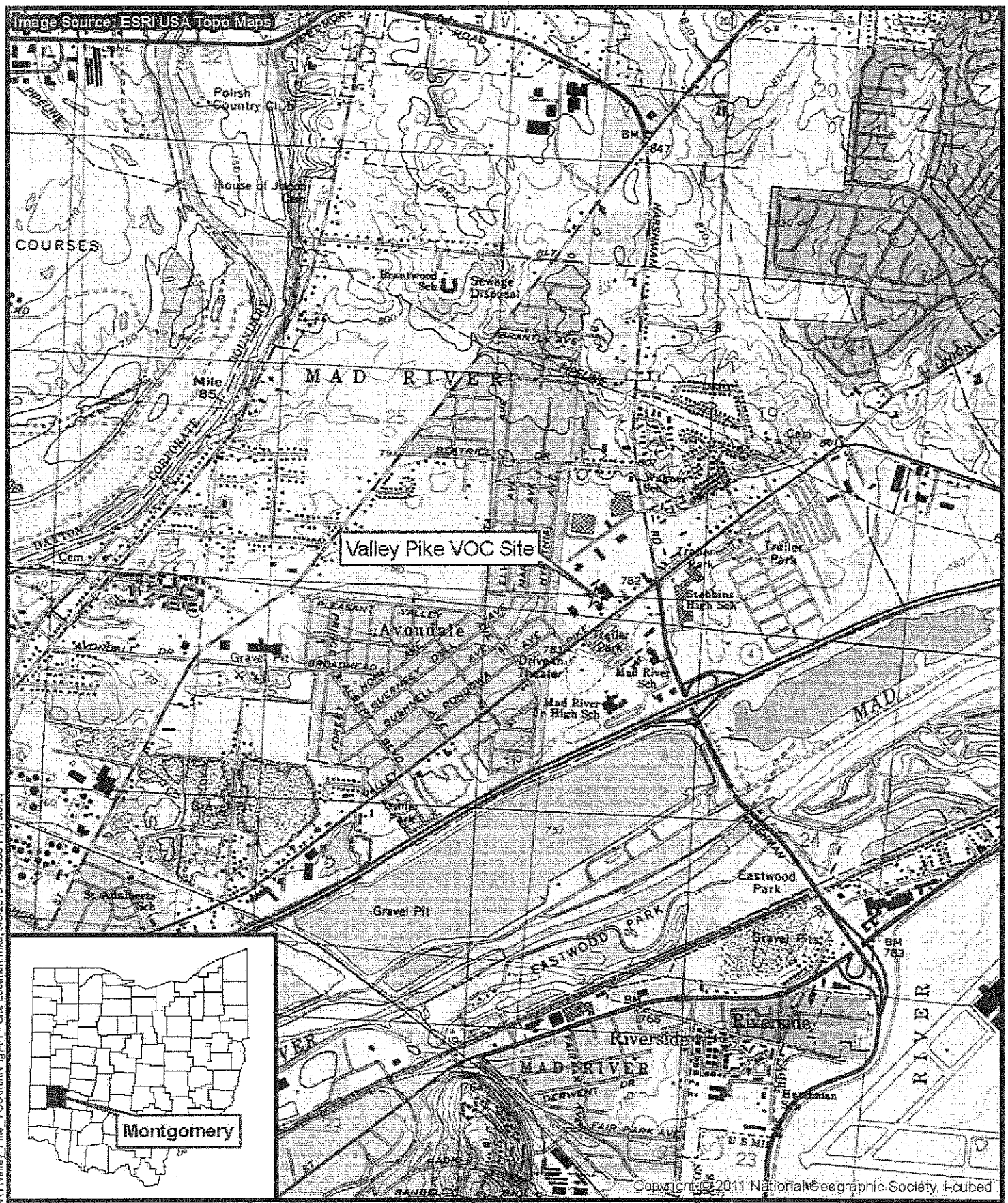
ENFORCEMENT ADDENDUM
VALLEY PIKE VOC SITE
RIVERSIDE, MONTOGMERY COUNTY, OHIO

ENFORCEMENT CONFIDENTIAL
NOT SUBJECT TO DISCOVERY

¼-Page Redacted, Exemption 5-Attorney Work-Product Privilege and Exemption 7(a) Interference with Enforcement Proceedings.

FIGURE A-1

SITE LOCATION MAP



Prepared for:
U.S. EPA REGION V

Contract No.: EP-S5-0604
TDD: S05-0001-1010-003
DCN: 8888-8X-XXXX

Prepared By:
WESTON SOLUTIONS
2501 Jolly Road
Suite 100
Okemos, MI 48864

Figure A-1
Site Location Map
Valley Pike VOC
Riverside, Montgomery County, Ohio

Path: D:\GIS_Projects\START\Valley_Pike_VOC\mxd\Fig A-1 - Site Location.mxd, 9/3/2013 4:46:38 PM, stolzs

FIGURE A-2

OHIO EPA GROUNDWATER PCE SAMPLING RESULTS - 2013

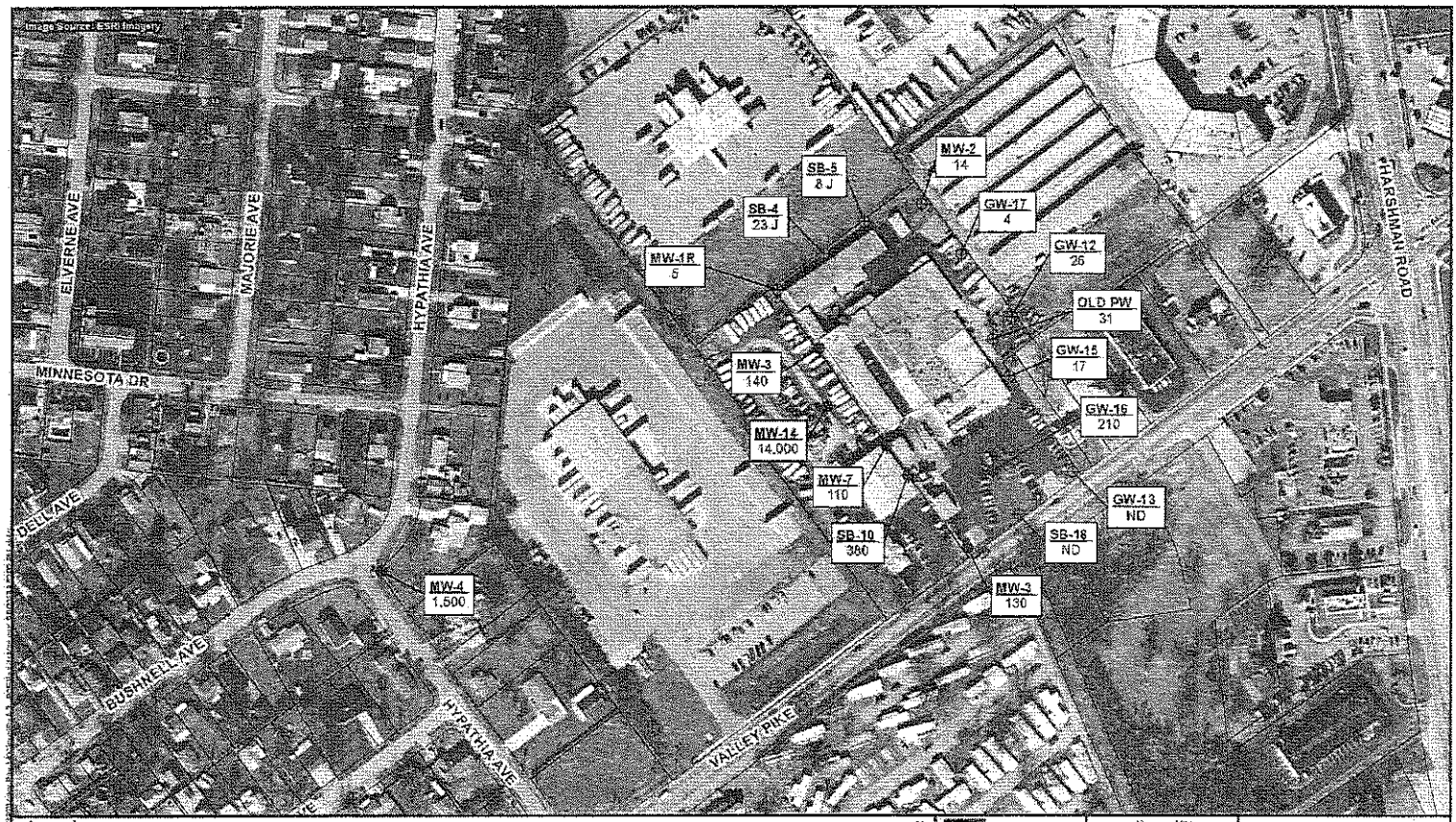
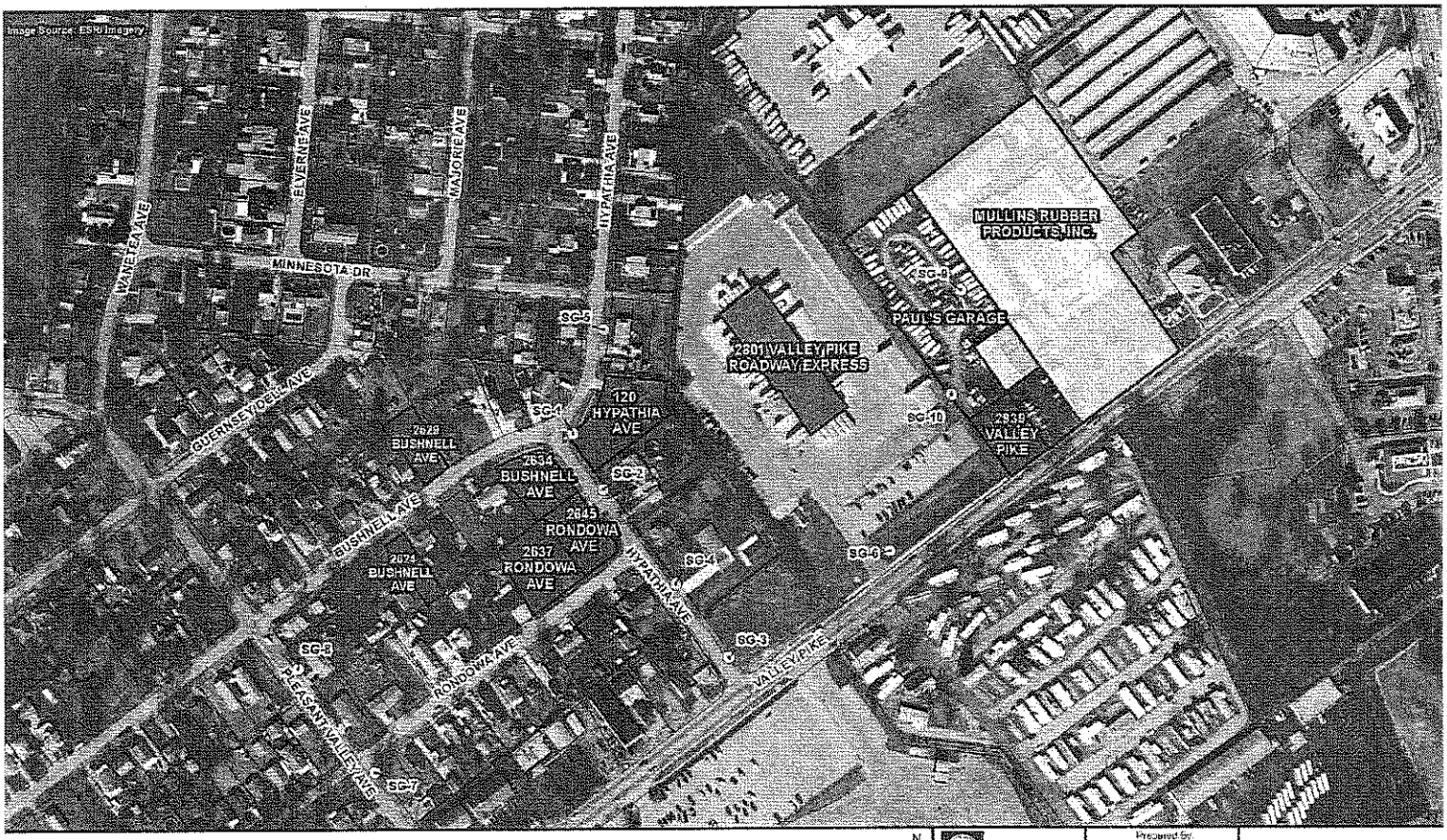


Image Source: ESRI Imagery
ELVERNE AVE
MAJORIE AVE
HYPATHIA AVE
MINNESOTA DR
DELL AVE
BUSHNELL AVE
HYPATHIA AVE
VALLEY PIKE
HARSHMAN ROAD
MW-2 14
SB-5 8 J
SB-4 23 J
GW-17 4
MW-1R 5
GW-12 26
OLD PW 31
GW-15 17
MW-3 140
GW-16 210
MW-14 14,000
MW-7 110
GW-13 ND
SB-10 380
SB-18 ND
MW-4 1,500
MW-3 130
Legend
Samples > 100 ug/L PCE
Samples < 100 ug/L PCE
Parcel Boundaries
Notes:
- PCE = Tetrachloroethylene
- Results are reported in micrograms per liter (ug/l)
- J = Estimated Result
- ND = Not Detected
N
0
150
300
Feet
Prepared for:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-1010-003
DCN: 6858-84-XXXX
Prepared by:
WESTON SOLUTIONS
2501 Jolly Road
Suite 100
Okemos, MI 48864
Figure A-2
Ohio EPA Groundwater
PCE Sampling Results - 2013
Valley Pike VOC
Riverside, Montgomery County, Ohio

FIGURE A-3

SAMPLING LOCATION MAP



Legend

- Soil Gas / Groundwater Locations
- Sampled Properties
- Mullins Rubber Products, Inc.
- Parcel Boundaries

0 150 300 Feet

N

Prepared for: U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-1010-005
DCN: 0588-BA-XXXX

Prepared by: WESTON SOLUTIONS
2501 Jolly Road
Suite 100
Okemos, MI 48864

Figure A-3
Sampling Location Map
Valley Pike VOC
Riverside, Montgomery County, Ohio

FIGURE A-4

PHOTOGRAPHIC DOCUMENTATION

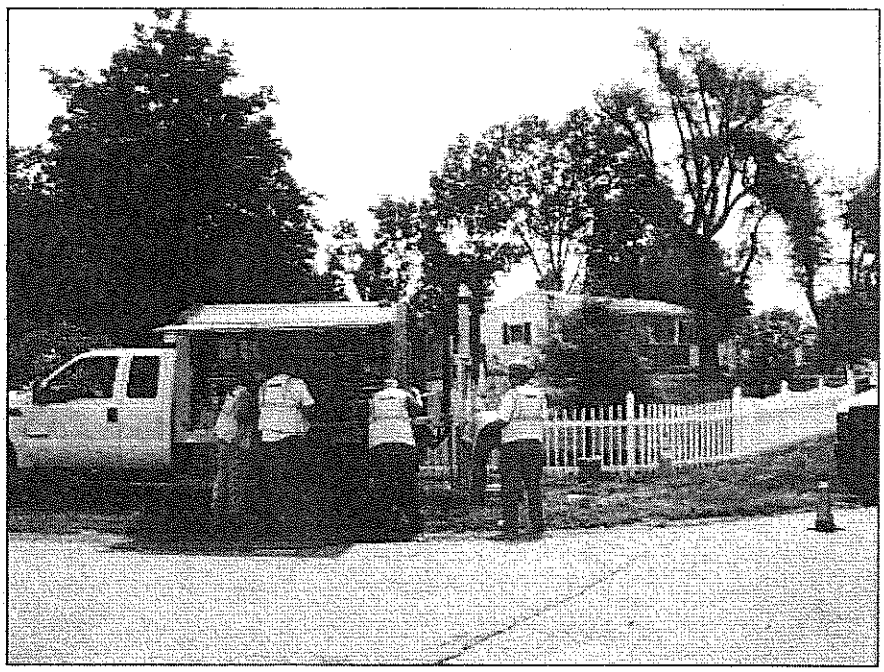


Photo 1: Ohio EPA installing a soil gas probes at SG-1 in July 2013

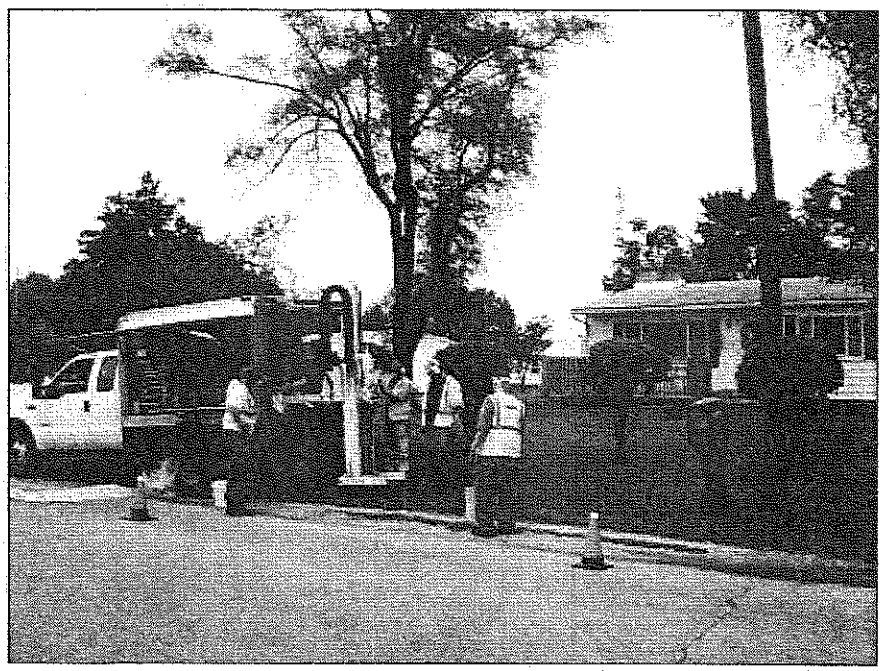


Photo 2: Installing soil gas probe at SG-2 in July 2013

Photo 3: Soil Gas Sampling at the 22.5-foot depth at SG-1; PCE concentration at this location = 30,000 ppbv

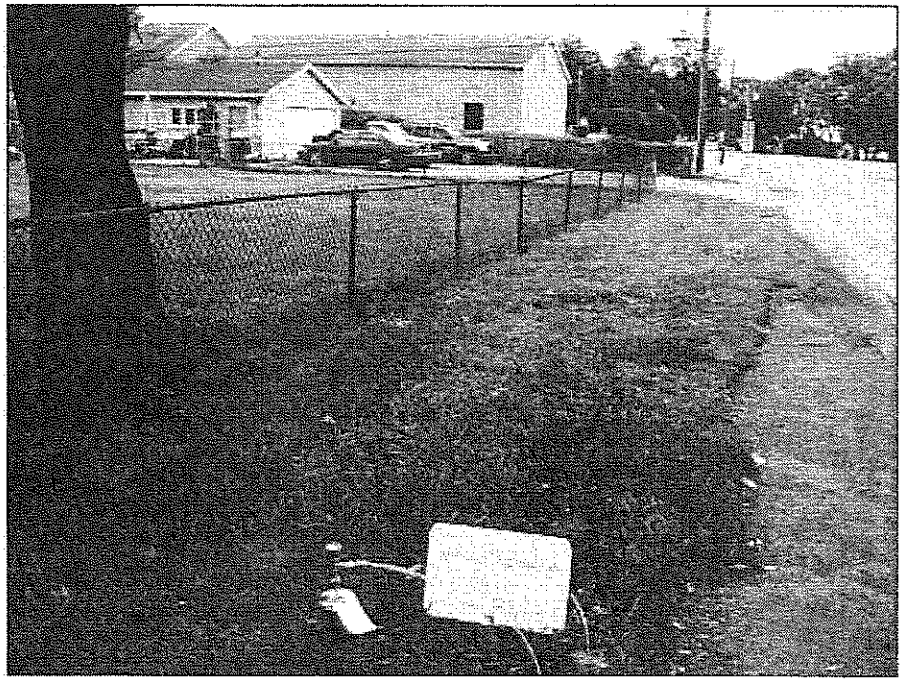


Photo 4: Soil Gas Sampling at the 20-foot depth at SG-7; PCE concentration at this location = 3,800 ppbv

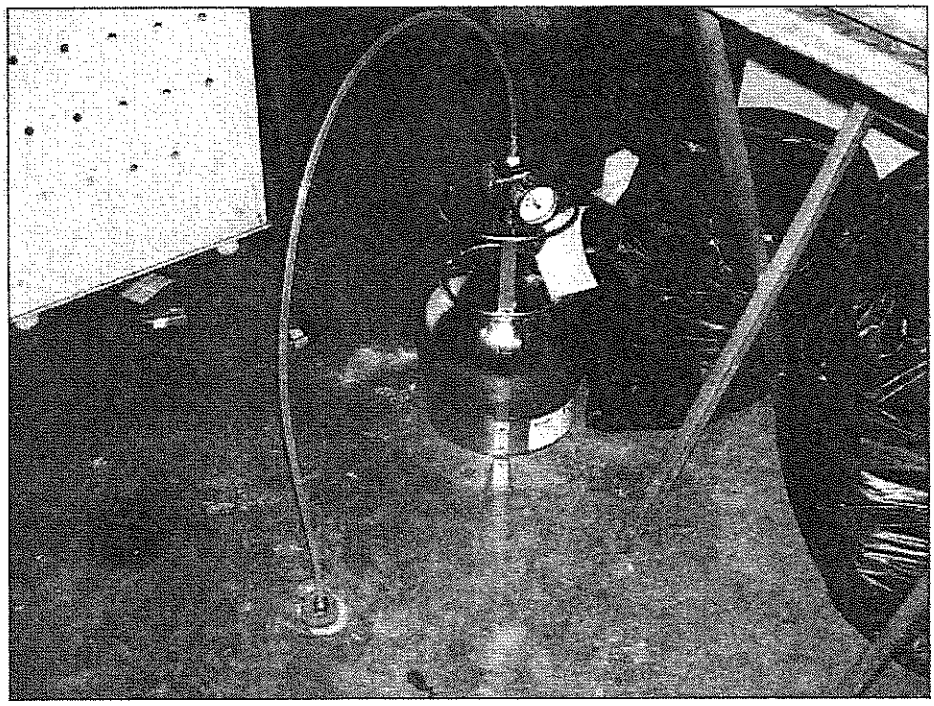


Photo 5: Sub-Slab Sampling at a residential property on Bushnell Avenue in July 2013

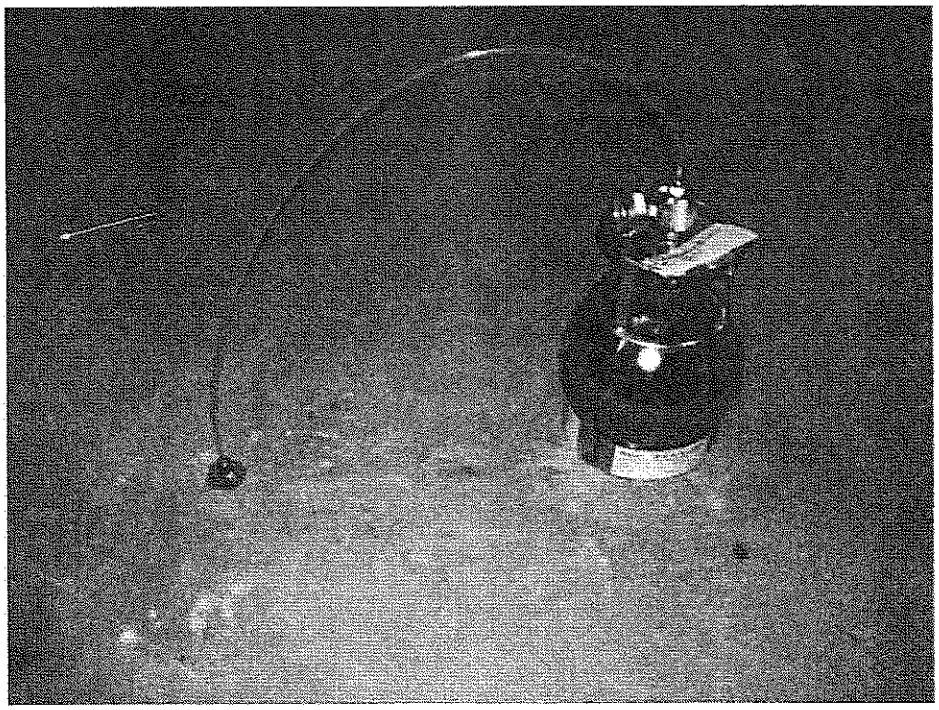


Photo 6: Sub-Slab Sampling at a residential property on Rondowa Avenue

ATTACHMENT I

DETAILED CLEANUP CONTRACTOR COST ESTIMATE
INDEPENDENT GOVERNMENT CLEANUP CONTRACTOR ESTIMATE

VALLEY PIKE VOC SITE
RIVERSIDE, MONTGOMERY COUNTY, OHIO
SEPTEMBER 2013

The estimated cleanup contractor (ERRS) costs necessary to complete the removal action at the Valley Pike VOC Site are as follows:

Personnel & Equipment	$207,768
Materials/Misc	$553,900
Transportation & Disposal	$0
Total	$761,668
Plus 20% Contingency	$152,334
Total ERRS Contractor Costs	**$914,002**

ATTACHMENT II

ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
VALLEY PIKE VOC SITE
RIVERSIDE, MONTGOMERY COUNTY, OHIO

ORIGINAL
SEPTEMBER 4, 2013
SEMS ID:

NO	SEMS ID	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	907383	09/00/97	ATSDR	File	ATSDR Tox Fact Sheet Re: Tetrachloroethylene CAS #127-18-4	2
2	907384	09/00/04	Ohio Department of Health	Public	Fact Sheet Re: Vapor Intrusion: Answers to Frequently Asked Health Questions	2
3	907385	06/25/12	Ohio Department of Health	Public	Fact Sheet Re: Trichloroethylene (TCE): Answers to Frequently Asked Health Questions	2
4	907386	07/25/12	Ohio Department of Health	Public	Fact Sheet Re: Tetrachloroethylene (PCE): Answers to Frequently Asked Health Questions	2
5	907387	02/23/11	Ohio EPA	Public	Site Inspection Report Re: Mullins Rubber Products, Inc.	187
6	907388	02/01/12	Ohio EPA	Public	Expanded Site Inspection (ESI) Report For Mullins Rubber Products, Inc.	523
7	907389	05/09/13	Watterworth, R., Ohio EPA	Durno, M., U.S. EPA	Memorandum Re: Request for Removal Assistance in Evaluating Vapor Intrusion Data and Time-Critical Removal Action at the Valley Pike VOC Site	15

NO	SEMS ID	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
8	907390	06/14/13	Frey, R., Ohio Department of Health	Renninger, S., U.S. EPA	Letter Re: Transmittal of Attached Screening Levels for Contaminants of Concern In Indoor and Sub-Slab Soil Gas for Residential and Non-Residential Properties at the Valley Pike VOC Site	2
9	907391	08/00/13	Ohio EPA	Public	Supplemental Expanded Site Inspection (SESI) Report For Mullins Rubber Products, Inc.	296
10	907392	08/19/13	Renninger, S., U.S. EPA	Glum, S., Ohio EPA	Letter Re: U.S. EPA Request That Ohio EPA Identify Any ARARs For The Valley Pike VOC Site	2
11	907419	09/04/13	Frey, R., Ohio Department of Health	Renninger, S., U.S. EPA	Ohio EPA Letter Health Consultation Re: Vapor Intrusion Data Evaluation At The Valley Pike VOC Site	13
12		00/00/00	Weston Solutions, Inc.	U.S. EPA	Site Assessment Report For The Valley Pike VOC Site **(PENDING)**	
13		00/00/00	Renninger, S., U.S. EPA	Karl, R., U.S EPA	Action Memorandum Re: Request for Approval And Funding For A Time-Critical Removal Action At The Valley Pike VOC Site **(PENDING)**	

ATTACHMENT III

INDEPENDENT GOVERNMENT COST ESTIMATE

VALLEY PIKE VOC SITE
RIVERSIDE, MONTGOMERY COUNTY, OHIO
SEPTEMBER 2013

The estimated cleanup contractor (ERRS) costs necessary to complete the removal action at the Valley Pike VOC Site are as follows:

Personnel:	
1 Response Mgr @ $70.92/hr X 10 hr/day X 75 days	$53,190
1 FCA @ $39.15/hr X 10 hr/day X 75 days	$29,363
2 Technicians @ $32.03/hr/day X 10 hr/day X 75 days	$48,045
1 Chemist @ $49.18 /hr/day X 10 hr/day X 6 days	$2,951
1 Electrician @ $42.56/hr/day X 10 hr/day X 75 systems	$31,920
	$165,468
Equipment:	
Pick-up trucks @ $42/day X 4 X 75 days	$12,600
2 Office Trailers @ $36/day x 100 days	$7,200
Misc. field equipment @ $300/day X 75 days	$22,500
	$42,300

Misc Costs:

Per Diem and Lodging	$41,400
Electricity	$5,000
Site Security @ lump sum	$30,000
Fuel (vehicles) lump sum	$2,500
Vapor Abatement Mitigation Systems (75 @ $5K each)	$375,000
Lab Costs (75 homes X 6 samples X $200)	$90,000
2 Porta-johns and hand wash station @ 1 lot X $10,000	$10,000
	$553,900

Disposal: None.

Total $761,668

2. START CONTRACTOR

START tasks to include oversight, sampling, monitoring, technical support and health and safety support.

1,000 Labor hours @ $110/hour	$ 110,000
TOTAL START CONTRACTOR	**$ 110,000**

3. U.S. EPA

U.S. EPA site management activities:

Direct: 1,000 labor hours (includes 50 HQ hours) @ $90/hr	$ 90,000
Indirect: 610 labor hours @ $90/hour	$ 54,900
TOTAL U.S. EPA	**$ 144,900**